DOCUMENT RESUME

ED 378 969 IR 055 332

AUTHOR Gambrill, Linda
TITLE An Evaluation of Magazines Suitable for Public Libraries for the Presence of Alkaline Paper.
PUB DATE Dec 94
NOTE 49p.; Master's Research Paper, Kent State University.
PUB TYPE Dissertations/Theses - Masters Theses (042)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Libraries; *Chemical Analysis; College Libraries; Higher Education; *Library Collections; *Periodicals; *Preservation; Public Libraries; *Publishing Industry; Records Management; Scholarly Journals
IDENTIFIERS *Acid Free Paper; Association Magazines; Kent State University OH

ABSTRACT

Conservation of library materials is becoming an increasing concern, and there has been some effort by publishers to avert the problems created by acidic paper by switching to acid-free alkaline paper. University publishers, responded to this concern by committing themselves to using acid-free paper; however, most commercial publishers, who produce the majority of periodicals, have been slow to commit themselves to it. In this study, periodicals of general interest were evaluated for the presence of acid-free paper. Approximately 100 periodical titles were chosen from the collection at Kent State University (Ohio) and tested with a marking pen developed to demonstrate the presence of acid in paper. It was found that journals published by universities and associations are more likely to use acid-free paper in their publications, with 31 of 41 titles (76%) printed on acid-free paper. Commercial publishers, accounting for 60 of the 100, used acid-free paper in only 23 titles (22.77%). Only five periodicals included statements about acid-free paper; three were from associations and two were from commercial publishers in Great Britain. Results reinforce the observation that publishers tend to have no real knowledge of the type of paper used in their periodicals. Nine tables present study findings. Three appendices contain the checklist and summaries of evaluated titles. (Contains 29 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 378 969

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

KENT STATE UNIVERSITY

AN EVALUATION OF MAGAZINES SUITABLE FOR PUBLIC LIBRARIES FOR THE PRESENCE OF ALKALINE PAPER

A RESEARCH PAPER SUBMITTED TO THE
SCHOOL OF LIBRARY AND INFORMATION SCIENCE
IN PARTIAL FULFILLMENT OF THE
MASTER'S OF LIBRARY SCIENCE DEGREE PROGRAM

SCHOOL OF LIBRARY AND INFORMATION SCIENCE

BY

LINDA GAMBRILL

KENT, OHIO

DECEMBER 1994

IR055332

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
R. DuMont
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

ABSTRACT

Conservation of library materials is becoming an increasing concern, due to an ever-increasing number of items being added to collections that are composed of paper that is programmed to fail within twenty to fifty years. There has been some effort by book publishers to avert the storage problems created by using an alum-rosin sized paper in their publications by switching to an alkaline filled paper. This trend has also appeared in periodical publishing, with university publishers committing themselves to the use of acid-free paper. However, most commercial publishers are reluctant to admit there is a problem created by acid based paper and are consequently slow to commit themselves to making the changeover to acid-free paper. This study was undertaken to evaluate those periodicals considered to be of general interest to readers for the presence of acid-free paper. Using Katz's Magazines for Public Libraries, approximately one hundred periodical titles were chosen that are part of the collection at Kent State University's Main Library. Using a marking pen that has been developed to demonstrate the presence of acid in the paper, these one hundred titles were tested. Each journal was marked on the inner margin, near the center of the page as well as closer to the top. The presence of acid-free paper caused a blue mark to appear; paper exhibiting more acid content created a yellow to green mark, with the most acidic being yellow. The journals were also noted for their paper type, whether plain or coated, as well as publisher, frequency of publication, photographs and drawings, and the presence or absence of a statement as to the paper content. In the evaluation process, it was found that those journals published by universities and associations were more likely to use acid-free paper in their publications, with 31 of 41 titles (76%) printed on acid-free paper, or 30.69 percent of all the titles tested. Commercial publishers, which accounted for 60 of the titles evaluated, exhibited the presence of acid-free paper in only 23 titles (38%), or 22.77 percent of the total. The presence of statements as to the use of acid-free paper was very limited, with only five periodicals bearing them; of these, three were associations and two were commercial publishers, both located in Great Britain. The results reinforce the observation that publishers tend to have no real knowledge concerning the type of paper used in their periodicals, as well as the fact that acid-free paper is no more expensive than an acid paper, since paper suppliers will provide the publisher with acid-free paper without a specific request.

Master's Research Paper by

Linda Gambrill

B.A., Grove City College, 1970

M.L.S., Kent State University, 1994

Approved by

Adviser Lois Buttlar Date 10-26-94

TABLE OF CONTENTS

Chapter

I. INTRODUCTION....1

Purpose of the Study....6
Limitations of the Study....6

II. REVIEW OF THE LITERATURE....7

III. METHODOLOGY....14

IV. ANALYSIS OF DATA....16

V. SUMMARY AND CONCLUSION....26

Appendix

A. CHECKLIST....30

B. UNIVERSITY DEPARTMENTS AND SCHOOLS....31

C. EVALUATED PERIODICAL TITLES....32

Reference List....37

ACKNOWLEDGEMENTS

Thanks are due to Dr. Lois Buttlar, who never permitted doubt that this work could be completed, as well as Professor Nancy Birk of Special Collections, whose unflagging enthusiasm for library conservation efforts provided the basis for this effort. Thanks also to Laura Leonard, Jeanne Kindry, and Charles Gambrill for their constant encouragement and support.

CHAPTER I

INTRODUCTION

Paper, in its many varieties and uses, forms an ubiquitous part of our daily lives. We read it with our coffee in the morning; we consult it to find a telephone number; we carry our lunch in it. Even with the advent of the electronic age, which is promising a "paperless society," it churns out of computer printers at an ever increasing pace. Even the ordinary telephone has a companion in the paper deluge, the fax machine. But paper has not always been such an integral part of life. Paper, in a form recognizable to us today, was probably invented by the Chinese, perhaps as early as the second century A.D. It followed the silk routes of the camel caravans westward, and was being made by the Arabs by 750 A.D. The Moors introduced it into Spain by the year 1150, and there was a paper mill in Italy by 1268. Papermaking moved into France and Germany in the fourteenth century and on to England in the fifteenth. The first American paper mill was established by William Rittenhouse near Germantown, Pennsylvania, in 1690 (Browning 1970).

In all this time, papermaking was a labor-intensive, "by hand" industry. The word "paper" is used to describe the product that results from pouring a liquid suspension of fibers through a fine screen. When dry, the fibers form a felted sheet capable of being folded or rolled. It displays surprising strength, considering the simplicity of its manufacturing process. An application of a film of starch or animal glue permits printing or writing inks to create a clear, easily read document. The basic ingredient in most of the paper of this entire period was cotton or linen rags. The slow growth in the use of paper was given a boost by the invention of the printing press. This began to put pressure on the supply of rags to fill the growing demand for paper. As early as 1719, French scientist and naturalist Réné Réaumur suggested wood as a source of papermaking fiber,

after observing that wasps made fine "paper" from wood (Morrow 1984). This quest for rags permitted the use of wrappings from Egyptian mummies, in spite of the the vigorous opposition of those concerned about the possibility of disease (Browning 1970). A machine capable of making paper was invented by Nicholas-Louis Robert in 1798 and developed by the Fourdrinier brothers in England in the early nineteenth century. This machine remains virtually unchanged to this day. In 1807, Moritz Illig, a German watchmaker, developed a sizing agent that could be introduced into the pulp prior to the formation of the paper sheet. This process involved the use of alum and rosin to form an insoluble salt to fill the open pores in the pulp (Shahani and Wilson 1987). These proved to be critical points in the history of paper.

The early years of the nineteenth century saw the confluence of several important developments. Growing literacy was creating a demand for penny press newspapers, as well as books. Rags in a quantity sufficient to supply these growing demands began to run out; an alternate source of fiber suitable for paper had to be found. Despite Réaumur's early observations concerning the possibility of using wood fibers, it was not until 1849, in Germany, that Friedrich Keller successfully produced wood pulp mechanically (Morrow 1984). Even at this point, paper was still produced with 40 percent rag pulp to improve its strength. In 1851, Hugh Burgess and Charles Watt developed a soda process for isolating cellulose fibers from wood (Shahani and Wilson 1987). In the United States, the pressures exerted on the cotton industry by the Civil War and the consequently severe shortage of cotton rags, led to the elimination of any cotton fibers in paper. Burgess and Watt's success, in combination with Moritz Illig's method of sizing, which gave the paper body and improved its ability to take print easily, created the conditions for the problems we are seeing today.

The results of the mixture of Keller's wood pulp and Illig's alum-rosin sizing went unnoticed or ignored until the closing decade of the nineteenth century. Initially, the finger was

pointed at wood pulp as the cause of the increasingly noticeable decline in the stability of paper, since early rag papers were not experiencing the same decline as later papers that contained wood pulp. This argument proved to be a weak one since, as early as 1823, John Murray, an English science writer and lecturer, was detailing the rapid deterioration of a Bible printed in 1816. This seemed to indicate that something other than fiber content was to blame (Williams 1970). In 1891, Rossiter Johnson wrote "Inferior Paper a Menace to the Permanence of Literature," which appeared in Library Journal (Williams 1970). There were experiments already being done, such as those by J.Y.W. MacAlister, who stated that "...many books on our shelves there [Leeds Library], even if left untouched, would not outlast the present generation of readers" (MacAlister 1898).

By the early twentieth century, researchers placed the blame where it belonged: with the acidity of the paper. Edwin Sutermeister, doing research at the S.D. Warren Company, began in 1901 a long-term experiment involving a paper composed completedy of wood fiber with a calcium carbonate filling. When examined after twenty-eight years, it proved to be as white and strong as when it was first made. William J. Barrow expanded on the original work of Sutermeister, and what is known and accepted today concerning the causes of paper deterioration is due to his work. Barrow began a study in 1957 dealing with the causes of paper deterioration. The results, published in 1959, stated that the combination of unpurified wood pulp, acid from chlorine bleach used to whiten the pulp, and the use of an alum-rosin sizing were to blame (Morrow 1984). He was able to develop a deacidification process that neutralized the acidity in paper while leaving an alkaline reserve. The search for a method of deacidifying paper that will restore some of the original strength seems a critical one: The Library of Congress alone has over six million books that are too brittle to read (Goldsmith 1988). An effective method using magnesium alkoxide has been developed by Wei T'o Associates, and it has been used effectively on both single sheets of paper as well as mass deacidification of small numbers of books (Smith 1987). But the cost may

be prohibitive: estimates range from lows of $3.27 (Smith 1987) to as high as $10.00 per book (Morrow 1984). With the inability of science to provide an economical solution to the problem caused by the presence of acid in the paper, a logical conclusion woud be to stop the use of paper that contains an acid core. This would, at the very least, cease adding to the problem of what to do with crumbling books.

While Barrow was publishing his findings, the Standard Paper Manufacturing Company in Richmond, Virginia was producing alkaline paper commercially for the first time. Even with this early success, the paper industry has been slow to convert its manufacturing capacity to the production of alkaline paper. The papermaking industry is production oriented and employs an efficient but conservative technology (Nainis et al. 1988). The book and periodical publishing industry in its entirety utilizes only 1 percent of the production of paper (Goldsmith 1988). The cost of changing over to alkaline production is often given as a reason for not doing so; however, figures indicate that, in 1980, manufacturers spent $6 billion refitting their plants, and little of this was spent on coversions to alkaline production (Brown 1985). The conversion can be completed relatively easily if the impetus is great enough. As reported by Lawton,

> Since we didn't have much staff, much money or very much time, we took the easy approach. As quickly as possible, and as simply as possible, the mill went alkaline. We did run some trials. We did involve the suppliers and we did keep everyone informed. But we did just go, and we did just stay, alkaline, regardless of what else happened (Lawton 1988, 37).

Alkaline paper production has increased significantly in recent years. More than thirty paper mills now produce alkaline paper, and ten to fifteen percent of all fine paper is alkaline (Roosa 1988). It can be less expensive to produce because it requires less pulp fiber per page due to the presence of calcium carbonate as a buffering agent, replacing the alum-rosin. This permits a tighter closure of the papermill water system, thus releasing less effluent into the environment (Association of Research Libraries 1988). The concern about the ability to mix acid and alkaline papers in

recycling operations has been effectively eliminated as a problem. The belief that the mixture of the two would cause "foaming" has not proven to be true (Pacey 1991). The National Information Standards Organization (NISO) has determined the characteristics of alkaline paper and published them as the American National Standard for Information Sceince-Permanence of Paper for Printed Materials (ANSI Z39.48-1984). This standard requires a minimum pH of 7.5 (pH being a measure of the acidity or alkalinity of a substance; 7.0 is neutral, below 7.0 indicates the presence of acid, and above 7.0 indicates an alkaline condition), with an alkaline reserve of 2 percent, as well as requirements for fold endurance and tear resistance. The problem seems to be apathy and indifference by the publishing industry.

There has been increased demand for book paper, but little of it has been for alkaline paper. The two opposing players, publishers and paper manufacturers, each accuse the other of being to blame for the stagnation of the alkaline paper issue. Both agree, however, that if consumers were to demand only alkaline paper in their books, all hesitation would evaporate. It is generally accepted that the public has little idea of what is actually happening within the covers of the books they are purchasing. Only about 25 percent of the publishing industry uses alkaline paper to some extent (Goldsmith 1988). Scholarly publishing has decided to emphasize publication on alkaline paper. In 1989, university publishers agreed to publish exclusively on acid-free paper (Association of Research Libraries 1989). However they use only a small portion of all paper produced (Kalina 1988). The federal government has taken a positive step to encouraging wider use of alkaline paper. On October 12, 1990, President George Bush signed PL101-423 into law, making it the official policy of the United States Government to print publications of "enduring value on acid-free papers" (Library Journal 1990). Since the Government Printing Office is the largest publisher in the world, this is a significant development. Even as publishers are reluctant to admit there is a problem with the deterioration of paper, and are making declarations that change

will come slowly, if at all, they are unaware that they are already publishing books on alkaline paper. Publishers seldom requested alkaline paper; the type of paper being supplied by manufacturers was unknown to most publishers (Goldsmith 1988). For a publisher, the requests are for a paper that satisfies their specifications for the finished product, the book.

With research libraries already focused on the problem of acidic books, another potential area of concern is that of their collection of periodicals, both academic and general interest. Scholarly publishers acknowledge the value of permanence of their publications, so they will be available for future researchers. Magazines of general interest are not considered the type of materials that qualify for long-term collection. However, they do contain a wealth of information concerning current social issues, as well as information on customs and trends of the population. Even advertisements offer clues as to what motivates and stimulates the public. With this in mind, research libraries maintain collections of periodicals that do not seem to be likely candidates for publication on alkaline paper, since the bulk of them are expected to be read and discarded. Until the paper manufacturing industry completes its changeover to alkaline production, these magazines will continue to be produced on acid paper. Or are they already printed on alkaline paper?

Purpose of the Study

The purpose of the study is to evaluate general interest periodicals for the presence or absence of alkalaine paper. This is based on the observation that many publishers are unaware of the fact that they are using alkaline paper. The possibility of maintaining these periodicals for use as a research tool by later generations would be enhanced by having some indication as to the composition of the paper used in them.

Limitation of the Study

This study will be limited to the colection housed at Kent State University Library, Kent, Ohio. Due to the variety of collections and storage conditions, these findings are not necessarily capable of generalization.

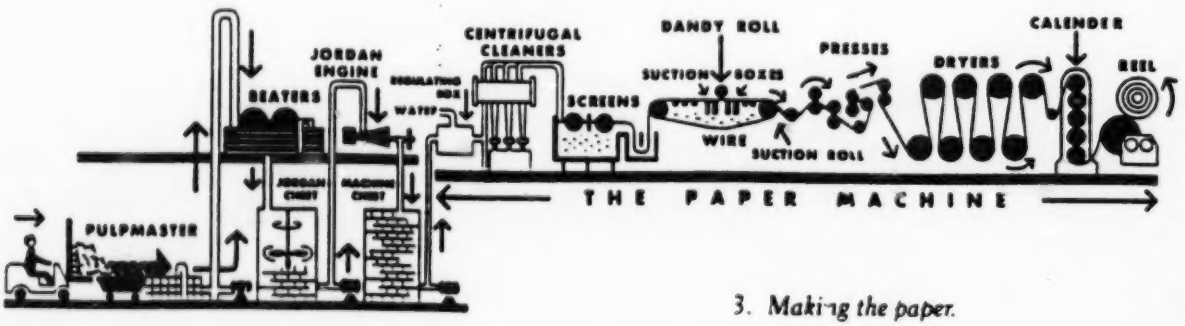
CHAPTER II

REVIEW OF THE LITERATURE

While paper was still a hand-made item, permanence was not much of an issue. With the development of machinery and the increased use of chemicals in the production of paper, problems with longevity began to arise. Shahani and Wilson (1987) report comments that the papers made in the early days of machine production were not very consistent as to quality . Both Williams (1981) and Shahani and Wilson (1987) credit Moritz Illig with noticing that aluminum sulfate could be added to the pulp and the need to size the finished sheet could be eliminated. There is no indication Illig was aware of the correct amount of alum required to overcome the increased alkalinity of the pulp caused by the chlorine used to improve the appearance of the finished product. Early reports of the deterioration of paper attest to the need for refinement in the use of chemicals, since both Edwin Williams (1970) and Shahani and Wilson (1987) remark on John Murray's dismay at the disintegration of a seven year old Bible.

When the replacement of cotton rags as the chief source of fibers in paper by wood pulp became complete, the potential for increased problems was realized. Browning (1970) emphasizes that it is important to remove lignin from the cellulose in wood to prevent the yellowing of paper, and Shahani and Wilson (1987) repeat this, adding that though the lignin is stable itself, it is the chlorination of the lignin that leads to yellowing. Paper, in spite of its relatively simple production, is a surprisingly complex structure. Browning (1970) details the many variables that can influence the stability and longevity of the finished product. The variety of methods of producing wood pulp can also influence the strength and durability of the finished product. The paper producing machine

today is a complex mechanism. (See Figure 1.) In a continuous operation, it introduces the stock at the "wet end," where it is poured onto an endless belt of fine wire screen; this "wire" carries it over as long a distance as fifty feet, continuously vibrating the pulp so that water is drained away and the fibers mesh. The soggy sheet then passes over rollers that squeeze out more water and then over heated drums that continue the drying process. It passes through a "calender" where it is pressed to the desired degree of smoothness. The reduction of moisture is from 99 percent at the "wet end" to 5 percent when it goes on the reel (Lee 1979).



2. *Preparing the stock.*

3. *Making the paper.*

Figure 1.

Lee, Marshall. 1979. Bookmaking: The illustrated guide to design/production/editing. New York: R.R. Bowker.

The scientific investigation of what was causing paper to become brittle and turn yellow did not begin until publication had proceeded for approximately fifty years, using the inexpensive bleached wood pulp as the primary ingredient in paper. When researchers began to look into the problem at the end of the nineteenth century, there was early disagreement as to what was the primary cause of decline. John Williams (1981) reports on the strong belief that "embrittlement is a characteristic of refined wood fibers, and that only rag will give long-lasting paper." This belief

BEST COPY AVAILABLE

was effectively denied by Royal Rasch in 1930, when he showed that "permanent and durable papers could be made from purified wood pulp" (Wilson and Parks 1983). By 1903, it was shown by Winkler that acidity is the true cause of the problem (Williams 1981).

Studies were proceeding at this time in a variety of directions. Edwin Sutermeister's early experiment with the replacement of alum-rosin sizing with an alkaline based filler is considered to be a pivotal work in the research area. Kearsey (1990) and John Williams (1981) relate his experiment in some detail, and Shahani and Wilson (1987) credit him with first postulating the benefits to be gained from using an alkaline filler, and comment on the good condition of the paper he created in 1901 even today. Sutermeister's experiment was a long-term one; the paper he created in 1901 was examined in 1929. By this time, as reported by Wilson and Parks (1983), Gösta Hall of the Royal Technical University of Sweden had developed an accelerated aging procedure and had influenced the direction of the National Bureau of Standards' research by suggesting that alum was the source of the acidity in the paper. Rasch confirmed Hall's finding that excess alum would weaken the stability of paper (Wilson and Parks 1983). Two of his contributions, a method for determining titratable acidity in paper and the accelerated aging procedure, are still used today by the Technical Association for the Pulp and Paper Industry (TAPPI).

William Barrow is credited with taking all of the observations of Sutermeister and Hall and applying them to the long-term study of the deterioration of paper and formulating a solution to the problem. Shahani and Wilson (1987) credit Barrow with early attempts at deacidfying and strengthening books, while John Williams (1981) details his efforts at producing alkaline wood fiber paper on a paper machine. Gwinn (1981) details the long association Barrow had with the Council on Library Resources (CLR), the results of which association culminated in the grant he received to work under the auspices of the Virginia State Library. The findings he made were

distressing. He found that "it seems probable that most library books printed in the first half of the 20th century will be in an unusable condition in the next century" (Gwinn 1981). These comments are repeated by Edwin Williams (1970) and Morrow (1984) and mark the point of acceptance of the problem and its causes.

Barrow's early work with deacidification led to many attempts to counteract the effects of the acidic alum-rosin present in the paper. Shahani and Wilson (1987) go into great detail with regard to the variety of methods employed. Early use of chemicals, such as ammonia and butyl amine, produced only temporary results. Barium salts and methanol, while effective, are highly toxic. A liquid-phase process, called Wei T'o, has proven to be effective; it uses magnesium methoxide dissolved in a mixture of methanol and a freon solvent. The banning of freon in 1991 makes continued use of this method doubtful. The Library of Congress has spent time developing a vapor-phase process using diethyl zinc (DEZ). DEZ has proven to be effective, but it is highly volatile. Smith (1987) reports on the failure of the early attempts using DEZ, and the cessation of funding for this method by the House Appropriations Committee. The possibility of correcting the problem of the large number of "terminal" books in library collections around the country does not show any signs of immediate solution. With the state of deacidification improving so slowly, it seems important to cease the addition of acidic books to the collections in the libraries across the country. With Barrow's successful production of alkaline paper on a paper machine, there should have been little reluctance by the industry to embrace alkaline paper. The truth, however, is that the changeover has been slow, but has been steadily progressing to increased production of alkaline paper.

Economics drives the paper manufacturing industry. Brown (1985) reports that the early '80s saw much capital improvement in paper production facilities, while the present decade shows periods of slow growth and a return to the more familiar production methods when it is perceived

to reduce costs (Shon 1993). Both Laughton (1989) and Lawton (1988) report on the increases in the cost of titanium dioxide and wood pulp, both essential ingredients in paper production. With the use of calcium carbonate as a filler in place of aluminum sulfate, the amount of wood pulp required in production decreases-certainly a positive factor for alkaline production, which Lawton (1988) cites as the main source of cost reduction. He further elaborates that "wet end" chemistry is simpler, since the need for pH control is no longer necessary. The system runs cleaner, and calcium carbonate is used both as a filler and as a coating. Nainis (1988), Laughton (1989) and Pacey (1991) all concur that, environmentally, the production of alkaline paper is much more beneficial than continued use of acid-based techniques. Often the complaint that it is extremely expensive to make the conversion from acid to alkaline production is used as a reason to delay changeover. Lawton (Lawton 1988) gave no indication that there was any significant expense involved in making the transition from one method to another. There was every indication in his statements that it was mind-set and motivation that were required to make the switch. Expanding the market for a product can also spur increased production of alkaline paper. Brown (1985) reports that Olin Corporation, which produces cigarette paper, which must be alkaline, found it had other markets for this light-weight paper. Pharmaceutical companies found the paper suitable for package inserts, as well as publishers of Bibles seeking lighter weight paper to make these books more easily transportable. Roosa (1988) reports that the number of mills producing alkaline paper has increased from five in the mid-'70s to thirty, with production figures of ten to 15 percent of all fine paper. Industry analysts expect that these figures will be up to 50 percent of uncoated, free-sheet paper by 1992 (Laughton, 1989). Shon (1993) reports that the production of alkaline paper reached a total of ten million tons in 1992, an increase of 1.2 million pounds over the previous year.

The indication then is that publishers do not demand alkaline paper vociferously enough to encourage the behemoth of the paper manufacturing industry to change. Nainis (Nainis et al. 1988) notes that until recently, many publishers were not aware of the problem. Goldsmith (1988) reports an even more distressing fact, that publishers are denying there is a problem. The truth of the matter lies somewhere between these two points: publishers were unaware that they had an option. Goldsmith (1988) reports further that suppliers seldom get requests from publishers for alkaline paper; at the same, time, they don't request acid paper, either. By 1989, publishers seemed to be more informed concerning the issue of alkaline paper. Publishers Weekly reported in 1989 that "every major publishing house has pledged its commitment to the preservation of the printed word. . .calling for the use of acid-free paper for all first printings of quality hardcover trade books." However, the same article goes on to affirm that it is only so long as the use of alkaline paper remains economically feasible that publishers will maintain this position. The position in Europe is much different. Swartzburg (1989) reports that alkaline paper is relatively common in Europe because it is cheaper to produce. It has been produced in Europe for a hundred years, and Goldsmith (1988) cites that production has been stepped up 50 percent in the past six years. Pacey (1991) indicates that all nine of Canada's fine paper producers have either built new plants or converted old ones for alkaline paper production, and are producing alkaline paper for all or some of their paper product lines. The year 1989 was important in the field of scholarly publishing, also. University presses agreed that year to print only on alkaline paper (Birk, 1993). Even though scholarly publishing accounts for only a small part of total paper use (Kalina 1988), the use of alkaline paper is seen as a positive step in the area of preservation. This is in direct opposition to the finding (Goldsmith 1988) that publishers apparently have little idea as to how much they publish on alkaline paper, having no knowledge that they do so. Publishers generally prefer a paper that fulfills their requirements for the item they are producing. Publishers Weekly indicates that

alkaline paper has been consistent in satisfying the requirements of cleanliness, brightness and "snappy art."

Ultimately, the individual most responsible for the type of paper used in published materials is the consumer. John Williams (1981) stresses the importance of an informed consumer being an influential part in encouraging expanded use of alkaline paper. An important area of concern to society today is the environment and recycling. Pacey (1991) points out that not only is the factor of pollution reduced by producing alkaline paper, but the paper is easily recyclable. The term "permanent" does not mean it cannot be recycled; it merely indicates its longer life-span with regard to its physical properties. Kearsey (1990) develops the theme that if the paper manufacturing industry presented an occupational hazard for its workforce, the conversion to alkaline paper production would have been mandated by government regulation. Those chemicals that are hazardous, such as chlorine, are not handled by the workers. Chlorine is used during pulp production, which is a closed process. Any areas of possible hazard to workers have shown minimal difference between production methods. With little to create a government push for the elimination of acid paper in book and periodical publication, it falls to the end user, the consumer, to be the impetus for change. Only with consistent reinforcement will the public begin to notice the quality afforded by the presence of alkaline paper. The fact that books turned yellow and became brittle as the years passed was most likely accepted by the public as a sign that they were indeed antiques and worthy of careful handling. They would probably never realize that nothing would be able to prevent their final crumbling to dust. Arresting the problem is important, and a "grass roots" campaign of consumer demand may be the deciding factor in completing the transition to alkaline paper.

CHAPTER III

METHODOLOGY

Katz's Magazines for Public Libraries was consulted to select a random sample of approximately one hundred periodical titles that Katz considers to be of general interest and a part of a well rounded general collection. The study was carried out by examining those titles collected by Kent State University Libraries. An attempt was made to select titles that may be considered of general interest to as many of the University departments as possible, while still covering the entire collection. An examination of the approximately one hundred titles chosen was done both for those in the bound collection as well as the more recent ones in the periodical reading room. The years chosen for examination are 1990 and 1994. Sampling those titles from 1990, when a decision was made by both academic publishers and the federal government to begin publishing on alkaline paper, served as a method of distinguishing any publications that were already being published on alkaline paper prior to this decision.

The testing method included the following:

1. A pen that has been developed to facilitate testing for the quality of paper was used to make a rapid determination of the presence of alkaline paper. This pen tests for the pH level in the paper by turning color: a strong blue indicates the paper is alkaline; a yellow color indicates a high acid content in the paper. A green-blue color indicates increasing acidity in a paper that may have had an slight alkaline base originally.

2. The same page number as well as same edition period was examined in all of the journals chosen. Two marks were made along the inner margin: one near the center and one near the top.The second mark aided in determining any changes that may be going on in the paper. Those journals that are published on coated paper were rechecked to determine the presence of an acid-free core.

3. In addition to observing the quality of the paper, other factors were considered: the type of paper, whether plain or coated; the frequency of the

publication; the presence of photographs and/or drawings; the declaration of the publisher concerning the type of paper being used.

4. A checklist (see Appendix A) comprised of all these variables was completed for each journal title for both years.

Upon completion of the testing, evaluation of the data was made by using a computer statistical program, Statistical Analysis System (SAS). The individual journals were evaluated for any changes that had occurred in their composition during the four year testing span.

CHAPTER IV

ANALYSIS OF DATA

Upon examining Katz's Magazines for Public Libraries, it was discovered that a wide range of periodicals were considered to be of general interest, encompassing titles that were fairly obvious, such as The Atlantic or Yachting, as well as those that could be considered of a more academic nature, such as Cato: Public Policy Analysis , or Daedalus. Katz justifies the wide range by including titles for both large public libraries that wish to serve as research libraries as well as the smaller public libraries that are responding to less demanding clients. Including titles to be analyzed from as many University departments as possible was not particularly difficult in the preliminary selection stage (See Apppendix B). However, when checking Kent State University Library's main collection of bound periodicals, it was discovered that many of the University schools and departments maintained their own libraries, and a number of titles chosen, for example, Architecture and Modern Bride, were located outside the main collection.. A decision was made to evaluate titles that were housed in the Main Library, since storage conditions would be consistent for all titles chosen. The effects of the variety of temperature and light conditions at the smaller libraries could be a factor in any degradation of the paper in both bound and current journal titles. A second consultation with Katz provided a fairly wide-ranging selection of titles, and an attempt was made to include any titles that could be of relevance to those University schools with their own libraries.

Once a workable list of journal titles was compiled, the determination of what was to be considered in the total publication package was made. Since the list of titles included those that could be considered of an academic nature, a decison was made to include the type of publisher as a criterion to be examined. This would serve as an aid in determining whether the expectation that academic publishers were using alkaline paper was an accurate one. Listing the publishers provided another advantage. Upon examining the titles chosen, it was discovered that several of them were published outside of the United States. This would provide a small indicator as to how prevalent alkaline paper is in foreign publications. The frequency of publication was also included in the items on the checklist, but only as an indicator of the potential for long-term storage problems for those items published weekly or bi-weekly that are composed on acid paper, due primarily to the large number of issues to be maintained. Also, it was necessary to recheck those items printed on coated paper. Most coatings on paper have been alkaline in content for several years, while the core of the paper may still be of an acid stock. With heavy coatings, it takes some time for the effects of the testing to show a valid result. The search for an acid-free statement was included, since a prior study done by the researcher found that academic publishers often declare their publications to be acid-free.

While observing that Katz's Magazines for Public Libraries included many titles that may be considered more academic in nature, most general interest periodicals are published by commercial publishers, comprising nearly 60 percent of the total number of titles examined (see Table 1). Some publishers are neither commercial nor academic, but rather associations that are interested in publishing news of their organization. These fall somewhere between the commercial publisher, who provides revenue for his varied publications by selling advertising, and the academic publisher, who permits little or no advertising. Often, advertisements in association publications are limited, and these periodicals may be considered more scholarly in nature.

Table 1.

Distribution of Periodical Titles by Type of Publisher.

Publisher Type	f	%
Commercial	60	59.4
University/Academic	11	10.9
Association	30	29.7
Total	101	100.0

Journals of general interest are most most frequently published on a monthly basis as well, while most academic journals appear on a quarterly or irregular basis (See Table 2). News magazines,

Table 2.

Distribution of Periodical Titles by Frequency of Publication.

Frequency of Publication	f	%
Weekly	13	12.9
Monthly	46	45.5
Bi-monthly	12	11.9
Quarterly	25	24.8
Bi-weekly	1	0.9
Irregular	4	4.0
Total	101	100.0

such as Jeune Afrique and U.S. News & World Report, are the most frequent periodicals to be published weekly, but these weekly publications make up only 13 percent of the titles considered. Association publications span a wider range of publication frequencies, from monthly through bi-monthly to quarterly, and even one, Booklist, published by the American Library Association, that is published twice each month..

The type of paper most commonly used in periodical publishing is coated, making up more than 65 percent of the total number of items evaluated. Within the various types of publishers, the breakdown of paper type shows that commercial publishers overwhelmingly prefer coated to plain paper; of a total of 60 commercial publications, 50 (83%) are printed on coated paper. Between association and academic publishers, the trend appears to be academic publishers preferring plain to coated paper, ten to one, and association publishers equally divided (See Table 3).

Table 3.

Distribution of Journals by Type of Paper and Publisher.

Type of Publisher	Type of Paper					
	Plain		Coated		Total	
	f	%	f	%	f	%
Commercial	10	16.7	50	83.3	60	59.4
University/Academic	10	90.9	1	9.1	11	10.9
Association	15	50.0	15	50.0	30	29.7
Total	35	34.7	66	65.3	101	100.0

The frequency of photographs and drawings also appeared to be a function of the type of paper used in the publication. In those periodicals printed on plain paper, twenty had no

photographs or drawings at all; the remaining fifteen periodicals showed a preponderance of drawings over photographs, with some containing both. In contrast, only one of 66 periodicals printed on coated paper had neither photographs nor drawings, that being Economic Geography, a university publication. Photographs were more common than drawings in those publications printed on coated paper, appearing in 64 of 66 (97%); drawings were included in 38 different titles (See Table 4). Often, periodicals had both photographs and drawings, with 41 having both, or

Table 4.

Frequency of Photographs and Drawings by Type of Paper.

Paper Type	Drawings/Photographs	f	%
Plain	Drawings	10	28.6
	Photographs	9	25.7
Coated	Drawings	38	57.6
	Photographs	64	97.0

40.6 percent. Of these 41, only four titles (9.7%) with both photographs and drawings were printed on plain paper. Only one of these was a commercial publication, Reader's Digest, which includes a mixture of both plain and coated paper, with the bulk of the periodical printed on plain paper.

The preceding information is interesting, but is chiefly of value in answering the questions concerning the various publishers' preferences in formatting the finished product--those aesthetic items that cause them to feel their product will capture the interest of the public and insure the success of their periodical. The most important decision they can make as far as a librarian-conservationist is concerned deals with the type of paper stock they choose for their publication--acid or alkaline. With regard to the presence or absence of alkaline paper, the change from 1990 to 1994 shows a marked increase in those periodicals being published on alkaline stock (See Table 5).

Table 5.

Frequency of Alkaline Paper in 1990 and 1994.

Paper Type	1990 - 1994	f	%
Alkaline	1990	33	32.7
	1994	54	53.5
Acid	1990	68	67.3
	1994	47	46.5

The number of periodicals printed on alkaline stock increased from 32.7 percent to 53.5 percent, an increase of 20.8 percent, a significant improvement. The breakdown by publisher indicates also that most of the change occurred within the commercial publishers, with the academic publishers maintaining the same figures from 1990 to 1994 (See Table 6). The number of commercial publishers that made the changeover from acid to alkaline paper increased from eight 13.3%) in 1990 to 23 (38.3%) in 1994, an increase of 25 percent. With those university publications that were tested, the values remained the same over the four year span, with ten of eleven remaining on alkaline stock. Another significant change appeared in the association publications, which had been evenly divided in 1990. By 1994, alkaline paper appeared in 21 (70%) of the 30 association periodicals, for an increase of 20 percent. The tendency does seem to indicate that there is a positive improvement in the number of periodicals appearing on acid-free stock. However, there seems to be little change in the declaration of the fact that the periodical is being printed on acid-free paper.

Table 6.

Frequency of Alkaline Paper by Type of Publisher, 1990/1994.

Publisher Type	Paper Type	f	%
Commercial	Acid-1990	52	86.7
	Acid-1994	37	61.7
	Alkaline-1990	8	13.3
	Alkaline-1994	23	38.3
University/Academic	Acid-1990,1994	1	9.1
	Alkaline-1990,1994	10	90.9
Association	Acid-1990	15	50.0
	Acid-1994	9	30.0
	Alkaline-1990	15	50.0
	Alkaline-1994	21	70.0

The indications are that very few publishers have consciously chosen alkaline stock. A comparison of the number of statements declaring the periodical is printed on acid-free paper has changed little from 1990 to 1994 (See Table 7). Only three periodicals (3%) in 1990 declared themselves to be acid-

Table 7.

Frequency of Acid-free Statements by Type of Publisher in 1994.

Publisher Type	f	%
Commercial	2	2.0
University/Academic	0	0.0
Association	3	3.0

tested acid-free in 1990, these are the only two that exhibited this change. Both were double checked because of this anomaly, particularly Conservation and Administration News, since its focus deals primarily with issues of conservation of library materials.

Of the periodicals that were printed on alkaline stock both in 1990 and 1994, the majority were published by associations, with 15 of 31, or 48.4 percent (See Table 9). Academic publishers accounted for nine, or 29 percent. Of the commercial publishers, represented by seven titles, four were publications printed in Great Britain. Canada, whose paper industry has made a more concerted effort to produce alkaline paper, did not reflect this in the three titles that were

Table 9.

Frequency of Acid-free Paper by Publication Period.

Publication Period	Year	No. of Titles	f	%
Weekly	1990	13	0	0
	1994		6	46.2
Biweekly/Irregular	1990	5	2	40.0
	1994		4	80.0
Monthly	1990	46	5	10.9
	1994		13	28.3
Bi-monthly	1990	12	5	41.7
	1994		6	50.0
Quarterly	1990	25	21	84.0
	1994		22	88.0

included in those evaluated. Two were association publications, and one, McLean's, is a commercial weekly newsmagazine. Culture, published by the Canadian Anthropological Society, was the only one printed on acid-free paper. The sample of Canadian magazines was too small to

make any true evaluation of Canadian publishing practices, however. Two European weeklies, Jeune Afrique, published by Japress in Paris, and Nature, of MacMillan Magazines, London, were among the six to be printed on acid-free paper. The figures show that for consistency, those publications that are available on a quarterly basis show the strongest preference for acid-free paper. Monthly publications, which made up the bulk of the testing sample, show some improvement on the presence of acid-free paper, but are the slowest of the groups tested to make the transition. With regard to library literature in general, nine titles were tested, and six of the nine were printed on alkaline paper, but with only three making acid-free statements in both 1990 and 1994.

While the number of variables considered for each periodical may seem excessive, since they revealed what could be considered superfluous information, they did form an interesting pattern when compiled by the various groups of publishers and publication frequencies. Quarterly publications indicate a more serious trend to acid-free paper. Since most quarterlies are university and association publications, which declared their intent to publish on alkaline paper in 1989, this result was expected. The largest group of titles, those published monthly, show a slow trend to acid-free paper. A more conscious choice of acid-free paper by this publishing group would make a significant difference in the longevity of their wealth of information.

Chapter V

Summary and Conclusion

Katz's Magazines for Public Libraries offers a surprisingly broad range of titles that are considered suitable for public library collections, and provides a varied list of titles that would not, at first glance, appear to be what one immediately thinks of as "general interest" periodicals. With the information obtained during the early literature search, the researcher at first expected a relatively bland evaluation process, with one hundred titles all printed on acid paper. Katz effectively provides a wide-ranging variety of academic and commercial publications, as well as European and Canadian titles, that provided some insight into validating the information obtained during the preliminary search of the literature. In formulating the checklist that was used to give a sketch of the type of publication being evaluated, variables were considered for their ability to give each periodical title a personality. In summarizing the data obtained during the evaluation period, these factors began to separate the various titles into distinctive groups.

The sample seemed to bear out the researcher's expectations that most general interest periodicals would be published monthly, with these making up the bulk of the periodicals tested. The expectation that they would not contain acid-free paper was also evident from the small number that appeared in the evaluation. The number of general interest titles that are published quarterly reinforced the findings of the researcher during an earlier study of university publications, that their purely academic as well as general interest titles are more likely to be printed on acid-free paper. This also concurs with the academic publishing community's

declaration in 1989 to publish on acid-free stock. Weekly publications were not expected to show any presence of acid-free paper, so the fact that there were any published on acid-free paper was a surprise. Katz's selection of a number of foreign titles provided some limited opportunity to verify the presence of acid-free paper in European titles, and Jeune Afrique and Nature, two weeklies, were printed on acid-free stock.

The presence or absence of the acid-free statement was the most significant element of the evaluation process. When university publishers agreed to use only acid-free paper in their publications, they were also to declare their intent. This was not found to be the case, since a large number of university publications were found to be acid-free, but made no statement as to that fact. Many commercial publishers may or may not be using acid-free paper, but none were interested in saying so. However, many were interested in making statements concerning their use of recycled paper and soy inks. Audubon, Horn Book and Daedalus make statements concerning the use of recycled paper. Timeline declares the use of paper composed of 40 percent pre-consumer and 10 percent post-consumer waste. Dance and Audubon have statements concerning the use of soy inks. Only one periodical, New Library Scene, bears both statements concerning the use of acid-free paper as well as those declaring the use of recycled paper and agribase (soy) inks. While this is a publication of the Library Binding Institute, and this might be expected of them, it does show it can all be done.

Commercial publishers present a more confusing picture. While some make statements concerning the use of recycled paper and soy ink, they are reluctant to concur concerning the use of acid-free paper. The frequency with which periodicals are published on acid-free paper has increased in the period from 1990 to 1994, but the manufacture of acid-free paper has also increased significantly. The appearance of statements concerning the use of recycled paper, even though few in number, indicates that publishers are asking paper suppliers for specific types of

paper. Apparently, the desire to publish on acid-free paper is not yet consdered by publishers to be of any necessity.

The researcher can only conclude from the results of the study that the use of acid-free paper may be accidental. Paper suppliers, in fulfilling the orders of publishers, provide them with acid-free stock if it fulfills the requirements of weight and coating type and falls within the pricing parameters. A more in-depth evaluation could be made of those commercial publishers whose items appeared on acid-free stock by evaluating other publications from 1994 as well as previous years. If there is any consistency to the frequency with which acid-free paper is used in the periodicals, perhaps the paper supplier is one that produces primarily acid-free paper, and the publisher is knowledgeable about it. In that case, the publisher may feel no need to declare his use of acid-free paper. However, if the presence of acid-free paper is not consistent, then a conclusion can be drawn that there is really no effort by the publisher to choose one type of paper over another.

The results indicate that university and association publishers are more aware and are making a better effort to choose paper that will survive intact for the foreseeable future. A further study of only commercial publications across a wider range of titles may give further indications of the true situation among this group of publishers. The presence of any acid-free paper in commercial publications was encouraging. Considering that the success of commercial publications is determined by keeping the costs of publishing as low as possible, the presence of acid-free stock in any periodical indicates that the cost of the paper need not be a determining factor in its choice. If paper suppliers can freely provide acid-free paper without a specific request, the excuse that alkaline paper is more expensive to produce becomes simply that, an excuse. Perhaps publishers need to be informed that their publications will be of interest to future generations, and if they can publish on acid-free paper with no change in their total cost of publishing, they should be more consistent in using acid-free paper.

Librarians are in a unique position to encourage publishers to specify acid-free paper for their periodicals. Not only are we faced with the unique problems of long-term storage of these items, but, as information providers, we are expected to have all types of periodicals available for our patrons. Knowledge of the value of using acid-free paper and the prevalence of acid stock in our collections should be available to all librarians charged with collection development and maintenance.

CHECKLIST

TITLE	PUBLISHER	FREQUENCY	PAPER TYPE: Plain Coated	RECHECK COATED 90 94	PICTURES: Photos Drawings	ACID-FREE STATEMENT 90 94	ACID-FREE 90 94

APPENDIX B.

UNIVERSITY DEPARTMENTS AND SCHOOLS

ARTS AND SCIENCES

Anthropology
Biology
Chemistry
Classical Studies
Criminal Justice
English
Geography
Geology
Germanic and Slavic Languages and Literature
History
Mathematics
Pan African Studies
Philosophy
Physics
Political Science
Psychology
Romance Languages and Literature
Sociology

BUSINESS ADMINISTRATION

Accounting
Administrative Science
Economics
Finance
Marketing

EDUCATION

Achve
Epls
Tdcs

FINE AND PROFESSIONAL ARTS

Architecture
Art
Communication Studies
F & CS
Fashion
Journalism
Library and Information Science
Music
Speech Pathology and Audiology
Technology
Theater
Nursing
PERD

INTERDISCIPLINARY PROGRAMS

Biomedical
Children's Literature
Ethnic Studies
Linguistics
Liquid Crystals
Pre-Law
Religious Studies
Women's Studies

CHECKLIST

TITLE	PUBLISHER	FREQUENCY	PAPER TYPE: Plain	PAPER TYPE: Coated	RECHECK COATED 90	RECHECK COATED 94	PICTURES: Photos	PICTURES: Drawings	ACID-FREE STATEMENT 90	ACID-FREE STATEMENT 94	ACID-FREE 90	ACID-FREE 94
ADWEEK	A/S/M Communications	Weekly		X		X	X		NO	NO	NO	YES
AMERICAN ANTHROPOLOGIST	American Anthropological Association	Quarterly	X					X	NO	YES	YES	YES
AMERICAN HERITAGE	American Heritage/ Forbes	10 x a year		X		X	X		NO	NO	NO	YES
AMERICAN HISTORY ILLUSTRATED	Cowles Magazines	10 x a year		X			X		NO	NO	NO	NO
AMERICAN LIBRARIES	American Library Association	Monthly		X			X		NO	NO	NO	NO
AMERICAN THEATER	Theater Communications Group	Monthly		X	X	X	X	X	NO	NO	YES	YES
ANTIOCH REVIEW	Antioch Review Inc.	Quarterly	X						NO	NO	YES	YES
ASTRONOMY	Kalmbach Publications	Monthly		X			X	X	NO	NO	NO	NO
ATLANTIC	Atlantic Monthly Company	Monthly		X			X	X	NO	NO	NO	NO
AUDIO	DCI/Hatchette Publications	Monthly		X			X	X	NO	NO	NO	NO
AUDUBON	National Audubon Society	Monthly		X		X	X		NO	NO*	NO	YES
BICYCLING	J.C. McCullagh Publications	Monthly		X			X	X	NO	NO	NO	NO
BLACK COLLEGIAN	Black Collegiate Services	Bi-Monthly		X			X		NO	NO	NO	NO
BOOKLIST	American Library Association	2x a month		X		X	X		NO	NO	NO	YES
BUSINESS MARKETING	Crain Communications	Monthly		X			X		NO	NO	NO	NO
BYTE	McGraw-Hill Publishers	Monthly		X			X	X	NO	NO	NO	NO
CAMPAIGNS AND ELECTIONS	Campaigns and Elections, Inc.	Bi-monthly		X	X		X		NO	NO	YES	NO
CANADIAN GEOGRAPHIC	Royal Canadian Geographic Society	Bi-monthly		X			X	X	NO	NO	NO	NO
CATO: PUBLIC POLICY ANALYSIS	Cato Institute	Quarterly	X						NO	NO	YES	YES
CIVIL WAR TIMES ILLUSTRATED	Cowles Magazines	Bi-monthly		X			X	X	NO	NO	NO	NO

* Recycled paper, vegetable ink

APPENDIX C

BEST COPY AVAILABLE

CHECKLIST

TITLE	PUBLISHER	FREQUENCY	PAPER TYPE: Plain	PAPER TYPE: Coated	RECHECK COATED 90	RECHECK COATED 94	PICTURES: Photos	PICTURES: Drawings	ACID-FREE STATEMENT 90	ACID-FREE STATEMENT 94	ACID-FREE 90	ACID-FREE 94
CLEVELAND MAGAZINE	City Magazines, Inc	Monthly		X		X	X		NO	NO	NO	YES
COMPUTER GRAPHICS WORLD	PennWell Publications	Monthly		X			X	X	NO	NO	NO	NO
COMPUTING TEACHER	International Society for Technology in Education	Monthly	X						NO	NO	YES	YES
CONGRESSIONAL DIGEST	Congressional Digest Corporation	10 x a year	X						NO	NO	NO	YES
CONSERVATION ADMINISTRATION NEWS	University of Tulsa Library	Quarterly	X				X		NO	NO	YES	NO
CONSUMER REPORTS	Consumers Union	Monthly		X			X	X	NO	NO	NO	NO
CORRECTIONS TODAY	American Correctional Association	Bi-monthly		X			X		NO	NO	NO	NO
CULTURE	Canadian Anthropological Society	2 x a year	X					X	NO	NO	YES	YES
CURRENT	Heldref Publications	10 x a year	X						NO	NO	NO	NO
CURRENT ANTHROPOLOGY	University of Chicago Press	Bi-monthly	X				X	X	NO	NO	NO	YES
DAEDALUS	American Academy of Arts and Science	Quarterly	X						NO	NO*	YES	YES
DANCE	Dance Magazine, Inc	Monthly		X		X	X		NO	NO*	NO	YES
DANCE TEACHER NOW	SMW Communications, Inc	Monthly		X			X		NO	NO	NO	NO
DIRECT MARKETING	Hoke Publications	Monthly		X			X		NO	NO	NO	NO
DISCOVER	Discover Publications, Inc	Monthly		X			X	X	NO	NO	NO	NO
DOWN BEAT	Kevin Maher	Monthly		X			X		NO	NO	NO	NO
ECONOMIC GEOGRAPHY	Clark University	Quarterly		X	X	X			NO	NO	YES	YES
ECONOMIST	Economist Newspaper	Weekly		X		X	X	X	NO	NO	NO	YES
EDITOR AND PUBLISHER	Editor and Publisher Company	Weekly		X			X	X	NO	NO	NO	NO
FOCUS	American Geographic Society	Quarterly		X	X	X	X	X	NO	NO	YES	YES

*Recycled paper and/or vegetable ink

(33)

BEST COPY AVAILABLE

CHECKLIST

TITLE	PUBLISHER	FREQUENCY	PAPER TYPE: Plain	PAPER TYPE: Coated	RECHECK COATED 90	RECHECK COATED 94	PICTURES: Photos	PICTURES: Drawings	ACID-FREE STATEMENT 90	ACID-FREE STATEMENT 94	ACID-FREE 90	ACID-FREE 94
FOREIGN POLICY	Carnegie Endowment for International Peace	Quarterly	X						NO	NO	NO	NO
GEOLOGY TODAY	Blackwell Science Publications, Oxford	Bi-monthly		X	X	X	X	X	NO	YES	YES	YES
GLAMOUR	Conde Nast Publishers	Monthly		X			X		NO	NO	NO	NO
GOLF	Times Mirror Publishers	Monthly		X			X	X	NO	NO	NO	NO
HARPER'S	Harper's Magazine Foundation	Monthly		X			X		NO	NO	NO	NO
HASTING'S CENTER REPORT	Hasting's Center	Bi-monthly	X						NO	NO	YES	YES
HISTORIAN	Phi Alpha Theta International Honor Society	Quarterly	X				X		NO	NO	YES	YES
HISTORY TODAY	History Today, Ltd London	Monthly		X	X	X	X	X	NO	NO	YES	YES
HORN BOOK 8	Horn Book, Inc	6 x a year	X					X	NO	NO*	YES	YES
HORTICULTURE	Horticulture Limited Partners	Monthly		X		X	X	X	NO	NO	NO	YES
INDIA TODAY	Living Media India, Ltd	Weekly		X			X	X	NO	NO	NO	NO
JEUNE AFRIQUE	Japress (Paris)	Weekly		X		X	X	X	NO	NO	NO	YES
JOURNAL of ANTHROPOLOGICAL RESEAR	University of New Mexico Press	Quarterly	X					X	NO	NO	YES	YES
JOURNAL OF CONTEMPORARY HISTORY	Sage Publications, London	Quarterly	X						NO	NO	YES	YES
JOURNAL OF THE WEST	Journal of the West, Inc	Quarterly	X				X		NO	NO	NO	YES
LAW AND ORDER	Hendon, Inc	Monthly		X			X	X	NO	NO	NO	NO
LIBRARY JOURNAL	Fred Ciporen	Monthly		X			X		NO	NO	NO	NO
LIBRARY RESOURCES & TECHNICAL SERVI	American Library Association	Quarterly	X			X		X	YES	YES	YES	YES
LIBRARY REVIEW	MCB University Press, Oxford	Quarterly	X					X	NO	NO	YES	YES
LIBRARY TRENDS	University of Illinois Press	Quarterly	X						NO	NO	YES	YES

Recycled paper

(34)

CHECKLIST

TITLE	PUBLISHER	FREQUENCY	PAPER TYPE: Plain	PAPER TYPE: Coated	RECHECK COATED 90	RECHECK COATED 94	PICTURES: Photos	PICTURES: Drawings	ACID-FREE STATEMENT 90	ACID-FREE STATEMENT 94	ACID-FREE 90	ACID-FREE 94
LIFE	Time, Inc	Monthly		x			x		NO	NO	NO	NO
MACLEAN'S	James K. Warrillow (Canada)	Weekly		x			x		NO	NO	NO	NO
MADEMOISELLE	Richard Kinsler	Monthly		x			x	x	NO	NO	NO	NO
MOTHER JONES	Foundation for National Progress	10 x a year		x	x	x	x	x	NO	NO	NO	YES
MOSAIC	National Science Foundation	Irregular		x		x	x	x	NO	NO	NO	YES
NATIONAL GEOGRAPHIC	National Geographic Society	Monthly		x		x	x	x	NO	NO	NO	YES
NATURE	MacMillan Magazines (London)	Weekly		x		x	x		NO	NO	NO	YES
NEW LIBRARY SCENE	Library Binding Institute	Bi-monthly	x				x	x	YES	YES*	YES	YES
NEW YORK	News America Publishers	Weekly		x		x	x	x	NO	NO	NO	YES
NEW YORKER	New Yorker Magazine, Inc	Weekly		x		x	x	x	NO	NO	NO	YES
NEWSWEEK	Newsweek, Inc.	Weekly		x			x	x	NO	NO	NO	NO
OHIO HISTORY	Ohio Archeological and Historical Society	Quarterly	x				x		NO	NO	YES	YES
OMNI	Omni Publications International, Inc	Monthly		x		x	x		NO	NO	NO	YES
ORGANIC GARDENING	Rodale Press	Monthly		x			x	x	NO	NO	NO	NO
OUTDOOR LIFE	Times Mirror, Inc	Monthly		x			x		NO	NO	NO	NO
PLAINS ANTHRO-POLOGIST	Plains Anthropological Society	Quarterly	x				x	x	NO	NO	NO	NO
POETRY	Modern Poetry Society	Monthly	x						NO	NO	YES	YES
POLITICAL SCIENCE QUARTERLY	Academy of Political Science	Quarterly	x						NO	NO	YES	YES
POPULAR MECHANICS	Hearst Corporation	Monthly		x			x	x	NO	NO	NO	NO
POPULAR PHOTOGRAPHY	Diamandis Communications, Inc	Monthly		x			x		NO	NO	NO	NO

*Recycled paper and/or vegetable ink

BEST COPY AVAILABLE

CHECKLIST

TITLE	PUBLISHER	FREQUENCY	PAPER TYPE: Plain	Coated	RECHECK COATED 90	94	PICTURES: Photos	Drawings	ACID-FREE STATEMENT 90	94	ACID-FREE 90	94
PRAIRIE SCHOONER	University of Nebraska Press	Quarterly	X						NO	NO	YES	YES
PSYCHOLOGY OF WOMEN QUARTERLY	Cambridge University Press	Quarterly	X						NO	NO	YES	YES
RARITAN	Rutger's University Press	Quarterly	X						NO	NO	YES	YES
READER'S DIGEST	Reader's Digest Association	Monthly	X				X	X	NO	NO	NO	NO
REVIEWS IN ANTHROPOLOGY	Goreton & Breach Science, UK	Quarterly	X						NO	NO	NO	YES
RQ REFERENCE LIBRARIAN QUARTER	American Library Association	Quarterly	X						YES	YES	YES	YES
RUNNER'S WORLD	Rodale Press	Monthly		X			X		NO	NO	NO	NO
SATURDAY EVENING POST	Ben Franklin Literary and Medical Society	9 x a year		X			X	X	NO	NO	NO	NO
SCIENCE	American Association for the Advancement of Sci	Weekly		X			X		NO	NO	NO	NO
SCIENTIFIC AMERICAN	Scientific American Society	Monthly		X			X	X	NO	NO	NO	NO
SHENANDOAH	Washington and Lee University	Quarterly	X						NO	NO	YES	YES
SMITSONIAN	Smithsonian Association	Monthly		X		X	X	X	NO	NO	NO	YES
STAND	Stand Magazine, London	Quarterly	X						NO	NO	YES	YES
TIME	Time, Inc	Weekly		X			X	X	NO	NO	NO	NO
TIMELINE	Ohio Historical Society	Bi-monthly		X	X	X	X	X	NO	NO*	YES	YES
TRAVEL/HOLIDAY	Reader's Digest Association	Monthly		X		X	X		NO	NO	NO	YES
U.S. NEWS AND WORLD REPORT	U.S. News and World Report, Inc	Weekly		X			X	X	NO	NO	NO	NO
UTNE READER	Lens Publishing Company	Bi-monthly	X				X		NO	NO	NO	NO
VITAL SPEECHES OF THE DAY	City News Publishers	Bi-monthly	X						NO	NO	NO	YES
VOGUE	Conde Nast Publications	Monthly		X	X	X	X	X	NO	NO	YES	YES
YACHTING	Times-Mirror Publications	Monthly		X		X	X		NO	NO	NO	YES

*Recycled paper

REFERENCE LIST

Adkins, Susan A. 1991. Saving brittle books: An annotated bibliography of preservation options. Collection Management 13, no. 4: 53-64.

Association of Research Libraries. 1988. Preserving knowledge: The case for alkaline paper. Washington, D.C.: Association of Research Libraries.

Blau, Eleanor. 1989. Publishers swear off acidic paper. New York Times 8 March, B1-2.

Brown, Jay Ward. 1985. The once and future book: The preservation crisis. Wilson Library Bulletin 59, no. 9 (May): 591-596.

Browning, B.L. 1970. The nature of paper. Library Quarterly 40, no. 1 (Jan.): 18-38.

Goldsmith, Barbara. 1988. Making books that will last: A call for authors to join the campaiagn for acid-free paper. The Authors Guild Bulletin (Winter): 34-36.

Gwinn, Nancy E. 1981. CLR and preservation. College and Research Libraries 42, no. 2 (March): 104-126.

Kalina, Charles R. 1988. Acid-free paper for biomedical literature. Scholarly Publishing 19, no. 4 (July): 217-220.

Kearsey, Irene. 1990. Fragile paper--other angles, other allies? Archives and Manuscripts 18, no. 1 (May): 75-88.

Laughton, Louise W. 1989."Paper industry moves into alkaline age. The New Library Scene 8, no. 5 (Oct.): 3-5.

Lawton, George. 1988. Alkaline papermaking at Simpson-Plainwell Paper Co. Alkaline Paper Advocate 1, no. 4 (Oct.): 36-41.

Lee, Marshall. 1979. Bookmaking: The illustrated guide to design/production/editing. New York: R. R. Bowker.

Library Journal. 116, no. 4 (1 March 1991): 30

MacAlister, J.Y.W. 1898. Address to Leeds Library Association. Quoted in Edwin E. Williams. Deterioration of library collections today. Library Quarterly 40, no.1 (Jan.): 5.

Morrow, Carolyn Clark. 1984. The preservation challenge. Boston: G. K. Hall.

Nainis, Linda, Charles R. Kalina, Jan Merrill-Oldham, and Carolyn Morrow Manns, eds. 1988. Why GPO should use alkaline paper. Documents to the People (March): 38-41.

Pacey, Antony. 1991. Alkaline 'permanent' paper. Canadian Library Journal 48, no. 6 (Dec.): 412-415.

Publishers Weekly. 233, no. 7 (19 Feb. 1988): 16.

_____. 235, no. 21 (26 May 1989): 17.

_____. 236, no. 3 (21 July 1989): 30-35.

_____. 237, no. 40 (5 Oct. 1990): 16.

Roosa, Mark. 1988. U.S. promotes the manufacture and use of permanent paper. International Preservation News no. 2 (Jan.): 1-3.

Shahani, Chandru J., and William K. Wilson. 1987. Preservation of libraries and archives. American Scientist 75, no. 3 (May-June): 240-251.

Shon, Melissa. Written off. Chemical Marketing Reporter, 20 Sept. 1993. SR3-SR9.

Smith, Richard D. 1987. Mass deacidification: The Wei T'o understanding. College and Research Library News (Jan.): 1-10.

Swartzburg, Susan G. 1989. TAPPI symposium. Conservation Administration News no. 36: 16.

Williams, John C. 1981. A Review of paper quality and paper chemistry. Library Trends 30, no. 2 (Fall): 203-224.

Williams, Edwin E. 1970. Deterioration of library collections today. Library Quarterly 40, no. 1 (Jan.): 3-17.

Wilson, William K. and Edwin J. Parks. 1983. Historical survey of research at the national bureau of standards on materials for archival records. Restaurator 5, nos. 3-4: 191-225.